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XXVI.—*A Revision of the Clupeoid Fishes of the Genera Pomolobus, Brevoortia and Dorosoma, and their Allies.*
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THE genera dealt with in this revision are the Clupeinæ with a distinct notch in the middle of the upper jaw ; these have usually been placed in two distinct groups—those with terminal mouth and the last dorsal ray not prolonged being associated with *Clupea*, and the others, with inferior mouth or last dorsal ray prolonged, forming a group apart (*Chatoessinæ* of Günther, *Dorosomatidæ* of modern authors) ; in my judgment this is quite an artificial arrangement. All these fishes appear either to be migratory, entering rivers to spawn in fresh or brackish water*, or are permanently fluviatile (e. g., *Gudusia*, *Signalosa*).

Synopsis of the Genera.

- I. Gill-rakers of epibranchial of first arch folding downwards, those near the angle overlapping the gill-rakers of the ceratobranchial.
- A. Scales with edges entire or feebly serrated ; normal scales from occiput to dorsal fin ; pelvic fins 9-rayed ; operculum with radiating grooves.

Teeth on vomer and palatines (rarely deciduous in adults) 1. *Caspialosa*.

* The breeding-habits of *Ethmidium* and *Ethmalosa* are unknown to me.

- Palate toothless; lower jaw not prominent, its tip included 2. *Alosa*.
- Palate toothless; lower jaw projecting 3. *Pomolobus*.
- B. Scales with edges serrated in young, pectinated in adults; pelvic fins 7-rayed.
- A well-defined series of pectinated scales on each side of middle line from occiput to dorsal fin; operculum striated or nearly smooth 4. *Brevoortia*.
- A median series of scutes from occiput to dorsal fin; operculum smooth or very feebly striated. 5. *Ethmidium*.
- II. Gill-rakers of epibranchial of first arch not folding downwards over those of ceratobranchial; pelvic fins 8-rayed; operculum smooth.
- A. Edge of dentary not reflected outwards in front of maxillary.
1. Last dorsal ray not prolonged.
- Upper gill-rakers of first and second arches and all of succeeding arches bent or expanded, T-shaped or triangular in section 6. *Ethmalosa*.
- Gill-rakers normal: scales large, 40-50/13-20 7. *Hilsa*.
- Gill-rakers normal; scales small, 75-100/27-34 8. *Gudusia*.
2. Last dorsal ray prolonged into a filament.
- Mouth terminal or subterminal; maxillary normal, with one supramaxillary 9. *Clupanodon*.
- Mouth terminal; maxillary normal, with two supramaxillaries 10. *Signalosa*.
- Mouth subterminal or inferior; maxillary slender, with one supramaxillary 11. *Dorosoma*.
- B. Edge of dentary reflected outwards in front of extremity of maxillary; mouth toothless, subterminal or inferior, transverse, its cleft forming an angle; one supramaxillary.
- Maxillary slender, distally slightly expanded and curved downwards; last dorsal ray produced into a filament 12. *Nematalosa*.
- Maxillary slender, distally slightly expanded and curved downwards; last dorsal ray not produced 13. *Gonialosa*.
- Maxillary a straight, thin, transversely expanded lamina, tapering distally; last dorsal ray not produced 14. *Anodontostoma*.

1. CASPIALOSA, Berg, 1915.

Clupeonella (non Kessler), Berg, Ann. & Mag. Nat. Hist. (8) xi. 1913, p. 472.

Caspialosa, Berg, Poiss. de l'eau douce de la Russie, p. 22 (1916).

Differs from *Alosa* in having three patches of teeth on the palate, borne by the vomer and palatine bones; but in large examples of *C. caspia* I find that the palate is toothless.

Black and Caspian Seas.

Berg recognizes thirteen species of this genus.

2. *ALOSA*, Cuv. 1829.

Règne Animal, ed. 2, ii. p. 319; Regan, Ann. & Mag. Nat. Hist. (8) xviii. 1916, p. 6.

North Atlantic and Mediterranean.

In my revision five species and six subspecies were recognized.

3. *POMOLOBUS*, Rafin. 1820.

Ichth. Ohiensis, p. 33; Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 424.

Distinguished from *Alosa* by the prominent lower jaw, with its tip not included.

Western North Atlantic.

Synopsis of the Species.

I. Lower jaw strongly projecting; 20 to 25 gill-rakers on lower part of anterior arch.

Anterior teeth persistent; maxillary extending to below posterior part of eye; caudal peduncle longer than deep 1. *chrysochloris*.

Jaws toothless; maxillary extending to below middle of eye; caudal peduncle as long as deep. 2. *mediocris*.

II. Lower jaw a little projecting; 40 to 50 gill-rakers on lower part of anterior arch.

Depth $3\frac{1}{2}$, head $4\frac{2}{3}$ in the length; eye $4\frac{1}{2}$ to 5 in head (in specimens of 220-260 mm.) 3. *estivalis*.

Depth 3, head 4 to $4\frac{1}{2}$ in the length; eye $3\frac{1}{2}$ to 4 in head (in specimens of 220-260 mm.) 4. *pseudoharengus*.

1. *Pomolobus chrysochloris*.

Pomolobus chrysochloris (Rafin. 1820), Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 425, and 1900, fig. 187.

Depth of body $3\frac{3}{4}$ in the length, length of head 4. Snout longer than diameter of eye, which is 6 in length of head; maxillary extending to below posterior part of eye; lower jaw strongly projecting; small conical teeth persistent in premaxillaries and anterior part of lower jaw; 23 gill-rakers on lower part of anterior arch. 56 scales in a longitudinal series, 17 in a transverse series; ventral scutes 21+15. Dorsal 18. Anal 18. Pelvics a little in advance of middle of dorsal. Caudal peduncle longer than deep. Silvery; back darker.

Mississippi and southern coast of U.S.A.

A single specimen, 280 mm. long, from Pensacola.

2. *Pomolobus mediocris*.

Pomolobus mediocris (Mitchill, 1815), Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 425, and 1900, fig. 188.

Depth of body $3\frac{1}{3}$ to $3\frac{2}{3}$ in the length, length of head 4 to $4\frac{1}{4}$. Snout longer than diameter of eye, which is 5 in length of head; maxillary extending to below middle of eye or a little beyond; lower jaw strongly projecting; jaws toothless; 21 or 22 gill-rakers on lower part of anterior arch. 56 scales in a longitudinal series, 17 in a transverse series; ventral scutes 21-22+16. Dorsal 16-18. Anal 20-22. Pelvics in advance of middle of dorsal. Caudal peduncle as long as deep. Silvery; back darker; each scale on sides with a dark spot.

Atlantic coast of U.S.A.

Three specimens, 280 to 300 mm. long, from the Potomac and Woods Hole.

3. *Pomolobus æstivalis*.

Pomolobus æstivalis (Mitchill, 1815), Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 426, and 1900, fig. 190.

Depth of body $3\frac{1}{2}$ in the length, length of head $4\frac{2}{3}$. Snout a little longer than diameter of eye, which is $4\frac{1}{2}$ to 5 in the length of head; maxillary extending to below anterior part or middle of eye; lower jaw a little projecting; jaws toothless; 44 to 47 gill-rakers on lower part of anterior arch. 52 to 55 scales in a longitudinal series, 15 or 16 in a transverse series; ventral scutes 20+14. Dorsal 17-18. Anal 18-20. Pelvics below anterior half of dorsal. Caudal peduncle longer than deep. Silvery; back darker.

Atlantic coast of U.S.A.

Two specimens, 220 and 260 mm. in total length.

4. *Pomolobus pseudoharengus*.

Pomolobus pseudoharengus (Wilson, c. 1811), Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 426, and 1900, fig. 189.

Depth of body 3 in the length, length of head 4 to $4\frac{1}{2}$. Snout as long as or shorter than diameter of eye, which is $3\frac{1}{2}$ to 4 in the length of head; maxillary extending to below middle of eye or a little beyond; lower jaw a little projecting; jaws toothless; 40 to 42 gill-rakers on lower part of anterior arch. 52 to 56 scales in a longitudinal series, 15 to 17 in a transverse series; ventral scutes 20-21+12-14.

Dorsal 16-18. Anal 18-22. Pelvics below anterior half of dorsal. Caudal peduncle as long as deep, or deeper than long. Silvery; back darker.

Atlantic coast of U.S.A.

Seven specimens, 220 to 260 mm. in total length.

4. BREVOORTIA, Gill, 1861.

Proc. Ac. Philadelphia, p. 37; Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 433.

This genus is distinguished from *Alosa* by the pectinated scales. The gill-rakers are very numerous; long and slender.

1. *Brevoortia tyrannus*.

Clupea tyrannus, Latrobe, Trans. Amer. Phil. Soc. v. 1872, p. 77, pl. i.

Clupanodon aureus, Agassiz, Spix, Pisc. Brasil. p. 52, pl. xxi. (1828).

Clupea menhaden (Mitchill, 1815), Günth. Cat. Fish. vii. p. 436 (1878).

Clupea aurea, Günth. t. c. p. 437.

Brevoortia tyrannus, Goode, Rep. U.S. Fish. Comm. 1877, p. 19, pls. i., ii. (1879); Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 433.

Brevoortia patronus, Goode, t. c. p. 26, pl. v.

Depth of body $2\frac{1}{2}$ to $3\frac{1}{3}$ in the length, length of head $2\frac{1}{5}$ to $3\frac{1}{5}$. About 70 gill-rakers (in the adult) on ceratobranchial of first arch. About 50 scales in a longitudinal and 25 in a transverse series; in adults scales very deep, two often meeting across one of the intermediate longitudinal series, thus increasing the number of transverse rows; ventral scutes 18-20+11-12. Dorsal 18-21. Anal 19-24. Pelvics below or in advance of anterior rays of dorsal. Vertebrae 48.

Nova Scotia to Gulf of Mexico and Brazil.

Several examples up to 350 mm. in total length; one of these, from Alabama, and therefore *B. patronus*, is exactly similar to the specimen 8 inches long, from Woods Hole, figured by Goode. Günther's example named *Clupea aurea* is without locality, and may be North American; the distribution of this species on the coast of South America has yet to be made out.

2. *Brevoortia pectinata*.

Alosa pectinata, Jenyns, Zool. 'Beagle,' Fish. p. 135, pl. xxv. (1842).

Clupea pectinata, Günth. Cat. Fish. vii. p. 437 (1868).

Brevoortia pectinata, Goode, Rep. U.S. Fish. Comm. 1877, p. 30, pl. vi. (1879).

Depth of body $2\frac{1}{3}$ to $2\frac{2}{3}$ in the length, length of head 3 to $3\frac{1}{2}$. Gill-rakers more numerous than in *B. tyrannus*, about

90 on ceratobranchial of first arch. Scales more regularly arranged and not so deep as in *B. tyrannus*; about 48 in a longitudinal series, 20 to 25 in a transverse series; ventral scutes 18-20 + 10-12. Dorsal 17-19. Anal 18-22. Pelvics below or in advance of origin of dorsal. Vertebrae 44.

Northern Patagonia to Southern Brazil.

Here described from the types, skins, 180 and 260 mm. in length (the larger kindly sent to me for examination by C. Forster Cooper, Esq.), and from four examples of 220 mm. from Rio Grande do Sul.

5. ETHMIDIUM, Thompson, 1916.

Proc. U.S. Nat. Mus. 1. p. 458.

Closely related to *Brevoortia*, but with a median series of scutes from occiput to dorsal fin.

Ethmidium maculatum.

Alausa maculata, Cuv. & Val. Hist. Nat. Poiss. xx. p. 430 (1847).

Alausa caerulea, Cuv. & Val. t. c. p. 432.

Clupea notacanthus, Günth. Cat. Fish. vii. p. 443 (1868).

Clupea maculata, Günth. l. c.

Clupea (Alausa) notacanthoides, Steind. Sitzungsb. Akad. Wien, lx. 1869, p. 309, pl. vii.

Ethmidium notacanthoides, Thompson, Proc. U.S. Nat. Mus. 1. 1916, p. 458.

Ethmidium caerulea, Thompson, t. c. p. 460.

Depth of body in the adult equal to length of head, 3 in length of fish; in the young head relatively shorter and body deeper. Diameter of eye 4 to 7 in length of head; maxillary extending to below posterior part of eye or beyond. 80 (young) to 160 (adult) gill-rakers on lower part of anterior arch. 24 to 28 scutes from occiput to dorsal fin; about 50 scales in a longitudinal, 17 to 20 in a transverse series; ventral scutes 18-20 + 15-17. Dorsal 19-22. Anal 14-18. Pelvics below anterior $\frac{1}{2}$ of dorsal. Vertebrae 50. Silvery; back bluish; sometimes a lateral series of dark spots.

Peru and Chile.

Four specimens, 100-280 mm. long, from Callao, Valparaiso, and Helladura Bay.

6. ETHMALOSA, gen. nov.

Form rather deep and strongly compressed. Upper jaw with median notch; lower jaw included; teeth minute or absent. Adipose eyelid well developed; cheek moderately deep, with a naked area below the suborbitals. Operculum

smooth except for a groove parallel to its anterior edge; suboperculum tapering upwards; opercular margin rounded; 6 branchiostegals. Lower gill-rakers of first and second arches long, slender, and numerous, those of ceratobrauchial folding over those of epibranchial, which are curiously expanded, T-shaped or triangular in section, appearing angularly bent on the lower side, but not on the upper; gill-rakers of third and fourth arches similarly expanded or recurved, the series fitting closely to form a sieve. About 45 scales in a longitudinal and 16 to 19 in a transverse series; edges of scales crenulated in the young, pectinated in the adult; transverse grooves paired, not meeting in the middle of the scale, only the most posterior groove extending right across; a well-defined mid-dorsal double row of scales, commencing with a large postoccipital pair, extends backwards to the dorsal fin; ventral scutes with sharp-pointed keels. Dorsal fin of 16 to 19 rays; a very low basal sheath. Anal of 20 to 23 rays. Pelvics 8-rayed, inserted below anterior $\frac{1}{2}$ of dorsal. Caudal with alar scales.

Ethmalosa dorsalis.

Meletta senegalensis, Cuv. & Val. Hist. Nat. Poiss. xx. p. 370 (1847).

Alausa dorsalis, Cuv. & Val. t. c. p. 418.

Alosa platycephalus, Bleek. Verh. Holl. Maatsch. Haarlem, 1862, Guinée, p. 123, pl. xxvi. fig. 2.

Clupea dorsalis, Günth. Cat. Fish. vii. p. 438 (1868).

Clupea setosa, Steind. Sitzungsab. Akad. Wien, lx. 1869, p. 311, pl. vi.

Depth of body $2\frac{1}{2}$ to 3 in the length, length of head 3 to $3\frac{2}{5}$. Diameter of eye $4\frac{1}{2}$ to 6 in length of head. Maxillary extending to below middle or posterior part of eye. About 45 scales in a longitudinal, 16 to 19 in a transverse series; ventral scutes 16-19 + 11-13. Dorsal 16-19. Anal 20-23. Pelvics below anterior $\frac{1}{2}$ of dorsal. Silvery; back darker; tip of dorsal fin blackish.

West Africa.

Numerous examples up to 300 mm. in total length.

7. HILSA, gen. nov.

Paralosa (non Bleek.), Regan, Ann. Durban Mus. i. 1916, p. 167.

Distinguished from *Alosa* by the smooth operculum and the different arrangement of the gill-rakers of the anterior arch, from *Ethmalosa* by the normal structure of the gill-rakers, and from both by the absence of alar scales on the caudal fin.

Coasts and rivers from Natal to China.

In the young the body is deeper and the head smaller than in the adults, the greater length of the head in the latter being mainly due to the size of the operculum.

Synopsis of the Species.

- I. Parietal ridges expanded and striated.
- A. Depth $2\frac{1}{2}$ to 3 in the length.
- Head 3 to $3\frac{2}{3}$ in the length 1. *kanagurta*.
 Head $3\frac{2}{3}$ to $3\frac{3}{4}$ in the length 2. *durbanensis*.
- B. Depth $2\frac{1}{4}$ in the length 3. *brachysoma*.
- II. Parietal ridges narrow, covered by smooth skin.
- A. Maxillary extending to below middle of eye (young) or beyond.
1. Caudal lobes as long as head.
- Operculum $\frac{1}{2}$ to $\frac{2}{3}$ as broad as deep; scales 45-48/17-20. 4. *ilisha*.
 Operculum $\frac{2}{3}$ to $\frac{3}{4}$ as broad as deep; scales 42-45, 16-17. 5. *reevsi*.
2. Caudal lobes longer than head.
- Operculum $\frac{1}{2}$ to $\frac{2}{3}$ as broad as deep; scales 40/14-15 .. 6. *toli*.
- B. Maxillary not reaching middle of eye; caudal lobes much longer than head; scales 45, 14-15..... 7. *macrura*.

1. *Hilsa kanagurta*.

Alosa kanagurta, Bleek. Verh. Bat. Gen. xxiv. 1852, Haringacht. p. 34; Atl. Ichth. vi. p. 114, Clup. pl. vii. fig. 5 (1872).

Alosa malayana, Bleek. Ned. Tijdschr. Dierk. iii. 1866, p. 294; Atl. Ichth. vi. p. 114, Clup. pl. vii. fig. 4.

Clupea ilisha, Günth. Cat. Fish. vii. p. 445 (1868).

Clupea kanagurta, Day, Fish. India, p. 640, pl. clxii. fig. 4; Weber & Beaufort, Fish. Indo-Austral. Arch. ii. p. 67 (1913).

Depth of body $2\frac{1}{2}$ to 3 in the length, length of head 3 to $3\frac{2}{3}$. Parietal ridges expanded and striated. Snout nearly as long as or a little longer than diameter of eye, which is $3\frac{2}{3}$ to $4\frac{1}{2}$ in length of head; maxillary extending to below middle or posterior part of eye; width of operculum $\frac{1}{2}$ or less than $\frac{1}{2}$ its depth; 100 to 150 gill-rakers on lower part of anterior arch. 42 to 45 scales in a longitudinal series, 13 or 14 in a transverse series; ventral scutes 16-18+11-13. Dorsal 17-20. Anal 19-22. Pelvics below anterior half of dorsal. Caudal about as long as head. A dark humeral spot, in the young followed by a series.

Zanzibar to Malay Archipelago.

Fifteen examples, up to 220 mm. in total length.

2. *IIlsa durbanensis*.

Clupea durbanensis, Regan, Ann. Natal Govt. Mns. i. 1906, p. 4, pl. iv.; Gilchrist, S. Afr. Mar. Biol. Rep. i. 1913, p. 59.

Depth of body $2\frac{1}{2}$ to 3 in the length, length of head $3\frac{3}{4}$ to $3\frac{3}{4}$. Parietal ridges expanded and striated. Snout as long as or slightly longer than diameter of eye, which is 4 to $4\frac{1}{2}$ in length of head; maxillary extending to below middle or posterior part of eye; width of operculum $\frac{2}{3}$ its depth; 150 gill-rakers on lower part of anterior arch. 42 to 44 scales in a longitudinal, 13 or 14 in a transverse series; ventral scutes 16-17+12-13. Dorsal 17-18. Anal 19-21. Pelvics below anterior half of dorsal. Caudal fin about as long as head. A dark humeral spot. Upper edge of dorsal and posterior edge of caudal blackish.

Natal.

Three specimens from Durban, 140 to 200 mm. in total length.

Gilchrist has examined a large example, 240 mm. long to base of caudal fin; in this the head is $3\frac{2}{5}$ in the length, and there are 200 gill-rakers on the lower part of the anterior arch.

3. *IIlsa brachysoma*.

? *Alosa brevis*, Bleek. J. Ind. Arch. ii. no. 9, 1848, p. 638; Atl. Ichth. vi. p. 116 (1872).

Alosa brachysoma, Bleek. Nat. Tijdschr. Ned. Ind. v. 1853, p. 527; Atl. Ichth. vi. p. 115, Clup. pl. iv. fig. 5 (1872).

Clupea platygaster, Günth. Cat. Fish. vii. p. 448 (1868); Weber & Beaufort, Fish. Indo-Austral. Arch. ii. p. 66, fig. 24 (1913).

Depth of body $2\frac{1}{4}$ in the length, length of head $3\frac{3}{5}$. Parietal ridges expanded and striated. Snout as long as diameter of eye, which is 4 in length of head; maxillary extending beyond middle of eye; width of operculum $\frac{2}{3}$ its depth; 100 gill-rakers on lower part of anterior arch. 42 scales in a longitudinal, 15 in a transverse series; ventral scutes 17+12. Dorsal 17-18. Anal 20-21. Pelvics below middle of dorsal. Caudal about as long as head. A dark humeral spot; dorsal and caudal dark-edged.

Sumatra.

Here described from Bleeker's type and only specimen, which has the head and body deeper and the lower jaw longer etc. than in *A. kanagurta* of this size (120 mm.); also the first mid-dorsal post-cephalic scale is a striated bony plate.

Weber and Beaufort's figure is of a fish that agrees with Bleeker's in the appearance of the head, but is more elongate in form, the depth about $2\frac{2}{3}$ in the length.

4. *Hilsa ilisha*.

Clupanodon ilisha, Ham. Buch. Fish. Ganges, p. 243, pl. xix. fig. 75.

Alosa palasah, Cuv. & Val. Hist. Nat. Poiss. xx. p. 432 (1847).

Clupea palasah, Günth. Cat. Fish. vii. p. 445 (1868).

Clupea ilisha, Day, Fish. India, p. 640, pl. clxxii. fig. 3 (1878).

Depth of body $2\frac{1}{2}$ to 3 in the length, length of head $3\frac{1}{4}$ to $3\frac{3}{4}$. Parietal ridges narrow, covered with smooth skin in the adult fish. Snout as long as or longer than diameter of eye, which is $4\frac{2}{3}$ to 7 in the length of head; maxillary extending to below posterior part of eye or beyond; width of operculum from a little more than $\frac{1}{2}$ to $\frac{2}{3}$ of its depth; 120 (young) to 220 gill-rakers on lower part of anterior arch. 45 to 48 scales in a longitudinal and 17 to 20 in a transverse series; ventral scutes 17-19 + 13-14. Dorsal 18-20. Anal 18-21. Pelvic fins below anterior part of dorsal. Caudal fin about as long as the head. Vertebrae 47.

Persian Gulf to Burma.

Several specimens, 130 to 350 mm. in total length.

5. *Hilsa reevesii*.

Alosa reevesii, Richards, Ichth. China, p. 305 (1846).

Alosa palasah, Richards, *l. c.* p. 306.

Clupea reevesii, Günth. Cat. Fish. vii. p. 446 (1868).

Depth of body 3 to $3\frac{1}{4}$ in the length, length of head 3 to $3\frac{1}{2}$. Upper surface of head covered with skin: no striated bones exposed, except in the young. Snout longer than diameter of eye, which is 5 to 9 in length of head; maxillary extending to below posterior part or edge of eye, or a little beyond; width of operculum $\frac{2}{3}$ or more than $\frac{2}{3}$ of its depth; gill-rakers long and slender. 150 (young) to 250 on lower part of anterior arch. 42 to 45 scales in a longitudinal, 16 or 17 in a transverse series; ventral scutes 18 + 13-14. Dorsal 17-18. Anal 18-19. Pelvics below anterior half of dorsal. Caudal fin about as long as the head.

China.

Seven examples, 150 to 500 mm. long, from Shanghai and Kiu Kiang.

6. *Hilsa toli*.

Alosa toli, Cuv. & Val. Hist. Nat. Poiss. xx. p. 435 (1847); Bleek.

Atl. Ichth. vi. p. 113, Clup. pl. viii. fig. 4 (1872).

Alosa ctenolepis, Bleek. Verh. Bat. Gen. xxiv. 1852, Haringacht. p. 32.

Clupea toli, Günth. Cat. Fish. vii. p. 447 (1868); Day, Fish. India,

p. 641, pl. clxii. fig. 2 (1878); Weber & Beaufort, Fish. Indo-Austral. Arch. ii. p. 64 (1913).

Clupea chapra, Günth. *l. c.*

Depth of body $2\frac{2}{3}$ to $3\frac{1}{4}$ in the length, length of head $3\frac{1}{2}$ to 4. Parietal ridges narrow, covered with smooth skin in the adult fish. Snout as long as or longer than diameter of eye, which is $4\frac{1}{3}$ to $7\frac{1}{2}$ in the length of head; maxillary extending to below posterior part of eye or beyond; width of operculum from $\frac{1}{2}$ to nearly $\frac{2}{3}$ of its depth; 70 to 95 gill-rakers on lower part of anterior arch. About 40 scales in a longitudinal and 14 or 15 in a transverse series; ventral scutes 17-18 + 11-13. Dorsal 17-19. Anal 18-21. Pelvics below middle of dorsal. Caudal lobes, in the adult fish, nearly $1\frac{1}{2}$ as long as head.

India, Malay Peninsula and Archipelago.

Several examples, 120 to 450 mm. in total length.

7. *Hilsa macrura*.

Alosa macrurus, Bleek. Verh. Bat. Gen. xxiv. 1852, Haringacht. p. 31; Atl. Ichth. vi. p. 113, Clup. pl. vi. fig. 4 (1872).

Clupea macrura, Günth. Cat. Fish. vii. p. 448 (1868); Weber & Beaufort, Fish. Indo-Austral. Arch. ii. p. 65 (1913).

Depth of body $2\frac{2}{3}$ to $3\frac{1}{4}$ in the length, length of head 4 to $4\frac{2}{3}$. Parietal ridges narrow, covered with smooth skin in the adult fish. Snout not longer than diameter of eye, which is 4 to 5 in the length of head; maxillary extending to below anterior $\frac{1}{3}$ of eye; width of operculum $\frac{1}{2}$ its depth; 60 to 80 gill-rakers on lower part of anterior arch. About 45 scales in a longitudinal and 14 or 15 in a transverse series; ventral scutes 16-18 + 11-15. Dorsal 17-20. Anal 18-21. Pelvics below middle or anterior part of dorsal. Caudal lobes, in the adult fish, nearly twice as long as head.

Sunda Islands.

Three examples, 160 to 350 mm. in total length.

8. GUDUSIA, Fowler, 1911.

Proc. Acad. Philadelphia, lxiii. p. 207.

Distinguished from *Hilsa* by the smaller scales.

Two species from the rivers of India and Burma.

1. *Gudusia chapra*.

Clupanodon chapra, Ham. Buch. Fish. Ganges, p. 248.

Clupea indica, Gray, Ill. Ind. Zool.; Günth. Cat. Fish. vii. p. 444 (1868).

Atausa microlepis, Cuv. & Val. Hist. Nat. Poiss. xx. p. 439 (1847).

Clupea chapra, Day, Fish. India, p. 639, pl. clxi. fig. 1 (1878).

Clupea suhia, Chaudhuri, Rec. Ind. Mus. vii. 1912, p. 439, pl. xxxviii fig. 1.

Depth of body $2\frac{2}{3}$ to $3\frac{1}{2}$ in the length, length of head $3\frac{1}{4}$ to $3\frac{1}{2}$. Snout shorter than diameter of eye, which is 4 in length

of head; maxillary extending to below anterior part or middle of eye; 200 or more gill-rakers on lower part of anterior arch. 75 to 100 scales in a longitudinal and 27 to 34 in a transverse series; ventral scutes 18-20+8-10. Dorsal 14-16. Anal 20-24. Pectoral 13-14. Pelvics nearly below origin of dorsal. Usually a dark humeral spot, sometimes followed by a series.

Northern India, from Sind to Assam.

Several examples, 120 to 140 mm. long.

2. *Gudusia variegata*.

Clupea variegata, Day, Proc. Zool. Soc. 1869, p. 263; Fish. India, p. 639, pl. clxi. fig. 4.

Depth of body $2\frac{1}{2}$ in the length, length of head $3\frac{3}{4}$. Snout a little shorter than diameter of eye, which is $4\frac{1}{4}$ in length of head; maxillary extending to below middle of eye; more than 200 gill-rakers on lower part of anterior arch. 90 scales in a longitudinal and 32 in a transverse series; ventral scutes 19+10. Dorsal 16. Anal 23. Pectoral 14. Pelvics nearly below origin of dorsal. Back with several vertically expanded dark spots.

Burma.

A single specimen, 166 mm. in total length.

According to Day, this species differs from *G. chupra* in the deeper body, the coloration, and 24 to 29 instead of 21 to 24 anal rays.

9. CLUPANODON, Lacep. 1803*.

Hist. Nat. Poiss. v. p. 468; Bleek. Atl. Ichth. vi. p. 112 (1872).

Konosirus, Jord. & Snyder, Proc. U.S. Nat. Mus. xxiii. 1900, p. 349.

Mouth toothless, terminal or subterminal, with lateral

* Of the six species placed by Lacepède in *Clupanodon*, Jordan (in collaboration) has at different times regarded as the genotype: 1. *jussieu* (by designation), 2. *pulchardus* (by elimination), and 3. *thrissa* (the first species). But before this, in 1872, Bleeker (Atl. Ichth. vi. p. 112) stated that *Clupanodon thrissa* was the type of Lacepède's genus. Reference to Lacepède's work leaves no doubt that his species was the true *Clupea thrissa* of Linnæus, who took the name and the diagnosis respectively from Osbeck and from Langerstrom. Lacepède took the specific name from Linnæus, and gave China as the first locality; his description of the pointed lower jaw and the notched upper jaw, and his statement that the fish spawns in fresh water, apply quite well to the Chinese species, but not to the Antillean species (*Opisthonema oglinum*), which so many of the older writers believed to be the same fish. Consequently I regard the *Clupea thrissa* of Osbeck, Linnæus, and Lacepède, and not the *Clupea thrissa* of Bloch and of Günther, as the type of *Clupanodon*.

cleft; maxillary normally formed, extending to below anterior part or middle of eye; anterior supramaxillary absent. Gill-rakers slender, very numerous. Dorsal 15-18; last ray produced into a filament. Anal 20-28. Pelvies 8-rayed, below anterior part of dorsal. 48 to 58 scales in a longitudinal series, 20-23 in a transverse series. Vertebrae 51 (in *C. punctatus*).

Coasts and rivers of China and Japan.

1. *Clupanodon thrissa*.

Clupea thrissa, Osbeck, Iter Chinesis, p. 257 (1757); Linn. Syst. Nat. ed. 10, p. 318 (1758).

Clupanodon thrissa, Lacep. Hist. Nat. Poiss. v. p. 468 (1803).

Chatoessus maculatus, Richards, Ichth. China, p. 308 (1846); Günth. Cat. Fish. vii. p. 409 (1868).

Chatoessus osbecki, Cuv. & Val. Hist. Nat. Poiss. xxi. p. 106 (1848).

Depth of body $2\frac{2}{3}$ to 3 in the length, length of head $3\frac{1}{2}$. Diameter of eye $4\frac{1}{2}$ to 5 in length of head. Mouth terminal; maxillary extending to below anterior part or middle of eye. 48 scales in a longitudinal, 20 in a transverse series; ventral scutes 18-20 + 10-12. Dorsal 15-16. Anal 22-27. Pelvies below anterior $\frac{1}{3}$ of dorsal. A dark humeral spot, sometimes followed by a series of spots.

China; Formosa.

Three specimens of 150-200 mm. from Formosa; two from China, 60 and 90 mm., are not included except for counts of fin-rays etc.

2. *Clupanodon punctatus*.

Chatoessus punctatus, Schlegel, Faun. Japon., Poiss. p. 240, pl. eix. fig. 1 (1846); Cuv. & Val. Hist. Nat. Poiss. xxi. p. 107 (1848); Günth. Cat. Fish. vii. p. 408 (1868).

Chatoessus aquosus, Richards, Ichth. China, p. 307 (1846); Cuv. & Val. Hist. Nat. Poiss. xxi. p. 109 (1848).

Konosirus punctatus, Jord. & Herre, Proc. U.S. Nat. Mus. xxxi. 1906, p. 624.

Depth of body 3 to $3\frac{1}{2}$ in the length, length of head $3\frac{2}{3}$ to $4\frac{1}{3}$. Diameter of eye $4\frac{1}{2}$ to 5 in length of head. Mouth subterminal; maxillary extending to below anterior part or nearly to middle of eye. 53 to 58 scales in a longitudinal, 20 to 23 in a transverse series; ventral scutes 18-21 + 14-17. Dorsal 16-18. Anal 20-25. Pelvies below anterior $\frac{1}{3}$ of dorsal. A dark humeral spot; a dark spot on each scale of upper half of body. Vertebrae 51.

China; Japan.

Eleven specimens, 150-200 mm. in total length.

10. SIGNALOSA, Everm. & Kendall, 1898.

Bull. U.S. Fish. Comm. 1897, p. 127.

Mouth toothless, terminal, with lateral cleft; maxillary normally formed, extending to below anterior edge of eye or a little beyond; two supramaxillaries. Gill-rakers slender, very numerous. Dorsal 13-16; last ray produced into a filament. Anal 21-27. Pelvics 8-rayed, below or a little in advance of origin of dorsal. About 40 scales in a longitudinal series. Vertebrae 41.

Rivers from Southern U.S.A. to Central America.

1. *Signalosa mexicana*.

Chatoessus mexicanus, Günth. Cat. Fish. vii. p. 409 (1868).

Dorosoma mexicanum, Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 416.

Signalosa atchafalaya, Jord. & Everm. t. c. 1898, p. 2809, fig. 184.

Signalosa mexicana, Meek, Zool. Publ. Columbian Mus. v. 1904, p. 94.

Depth of body $2\frac{3}{4}$ to 3 in the length, length of head 3 to $3\frac{3}{5}$. Diameter of eye $3\frac{1}{2}$ to 4 in length of head; maxillary extending to below anterior edge or $\frac{1}{4}$ of eye. 200 gill-rakers on lower part of anterior arch. About 40 scales in a longitudinal series; ventral scutes 16-18 + 8-10. Dorsal 13-15; origin equidistant from end of snout and base of caudal, or nearer former. Anal 23-27. Pelvics inserted a little in advance of origin of dorsal. A dark humeral spot.

Louisiana to Central America, in rivers emptying into the Gulf of Mexico.

Nine specimens, 70 to 100 mm. in total length.

2. *Signalosa petenensis*.

Meletta petenensis, Günth. Proc. Zool. Soc. 1866, p. 603.

Chatoessus petenensis, Günth. Cat. Fish. vii. p. 408 (1868).

Depth of body 3 in the length, length of head $3\frac{1}{2}$ to $3\frac{3}{5}$. Diameter of eye $3\frac{1}{2}$ to 4 in length of head; maxillary extending to below anterior $\frac{1}{4}$ or edge of eye. 160 gill-rakers on lower part of anterior arch. About 40 scales in a longitudinal series; ventral scutes 14-16 + 10-12. Dorsal 15-16; origin nearer to end of snout than to base of caudal. Anal 21-24. Pelvics inserted below origin of dorsal. A dark humeral spot.

Lake Peten.

Four specimens, 70 to 90 mm. in total length.

11. DOROSOMA, Rafin. 1820.

Ichth. Ohiensis, p. 39.

Chatoessus (part.), Cuv. Règne Anim. ed. 2, ii. p. 320 (1829); Günth.

Cat. Fish. vii. p. 406 (1868).

Chatoessus, Cuv. & Val. Hist. Nat. Poiss. xxi. p. 94 (1848).

Mouth subterminal or inferior; maxillary narrowed distally; anterior supramaxillary absent. Gill-rakers slender, very numerous. Dorsal 12-15; last ray produced into a filament. Anal 26-38. Pelvics 8-rayed, in advance of dorsal. 55 to 80 scales in a longitudinal series. Vertebrae 50.

Atlantic coast and rivers of North and Central America.

1. *Dorosoma cepedianum*.

Megalops cepedianus, Le Sueur, Journ. Acad. Philadelphia, i. 1818, p. 361.

Clupea heterura, Rafinesque, Amer. Monthly Mag. 1818, p. 354.

Dorosoma notata, Rafinesque, Ichth. Ohiensis, p. 39 (1820).

Chatoessus ellipticus, Kirtland, Rep. Zool. Ohio, p. 169 (1839).

Dorosoma insociabilis, Abbott, Proc. Acad. Philadelphia, 1860, p. 365.

Chatoessus cepedianus, Günth. Cat. Fish. vii. p. 409 (1868).

Dorosoma cepedianum, Jord. & Everm. Bull. U.S. Nat. Mus. xvii. 1896, p. 416, and 1900, fig. 183.

Dorosoma cepedianum exile, Jord. & Everm. *l. c.*

Dorosoma exile, Meek, Zool. Publ. Columbian Mus. v. 1904, p. 94.

Mouth small, subterminal or inferior; maxillary extending to below anterior edge of eye. Depth of body 2 to 3 in the length, length of head $3\frac{2}{3}$ to $4\frac{1}{3}$. Diameter of eye 4 to 5 in length of head. 55 to 65 scales in a longitudinal series, 21 to 29 in a transverse series; ventral scutes 17-19+10-13. Dorsal 13-15. Anal 30-34. Pelvics inserted in advance of origin of dorsal. A dark humeral spot, most prominent in the young.

Cape Cod to Mexico, entering rivers.

Here described from five specimens, 180 to 260 mm. long, from Virginia, Illinois, and Texas. In these the body is deeper (depth 2 to $2\frac{1}{3}$ in the length) in the examples from Virginia than in those from Illinois and Texas (depth $2\frac{2}{3}$ to 3 in the length); but in young specimens this difference is not apparent, the depth being about $\frac{1}{3}$ of the length in both forms.

2. *Dorosoma anale*.

Dorosoma anale, Meek, Zool. Publ. Columbian Mus. v. 1904, p. 93, fig.

Depth of body $2\frac{2}{3}$ to 3 in the length. About 70 scales in

a longitudinal series. Dorsal 13-14. Anal 35-38. In other respects like *D. cepedianum*.

Atlantic coast streams of Mexico south of Vera Cruz.

Two examples, 120 to 160 mm. long, from Perez (*Meek*).

3. *Dorosoma chavesi*.

Dorosoma chavesi, Meek, Zool. Publ. Columbian Mus. vii. 1907, p. 112.

Mouth rather large, with the jaws nearly equal anteriorly, the mandible nearly $\frac{1}{2}$ the length of head and the slender maxillary extending to below the middle of the eye. Depth of body $2\frac{4}{5}$ in the length, length of head $2\frac{3}{4}$ to 3. Diameter of eye 3 to $3\frac{1}{3}$ in length of head. 74 to 78 scales in a longitudinal series; ventral scutes 17-19+9-10. Dorsal 12-15. Anal 26-30. A dark humeral spot.

Total length 47 to 210 mm.

Lakes Managua and Nicaragua.

12. NEMATALOSA, gen. nov.

Mouth toothless, subterminal or inferior, transverse, its cleft forming an angle; maxillary slender, distally slightly expanded and curved downwards; edge of dentary reflected outwards in front of extremity of maxillary; one supra-maxillary. Gill-rakers slender, very numerous. Dorsal 13-18; last ray prolonged into a filament; a scaly sheath at base. Anal 18-24. Pelvics 8-rayed, below or a little in advance of dorsal. Scales 44-50 in a longitudinal series, 14-21 in a transverse series. Vertebrae 43 (in *N. erebi*).

Coasts and rivers of Asia and Australia from Arabia to Japan and New South Wales.

Synopsis of the Species.

- I. Second suborbital covering cheek, its anterior edge vertical and its lower edge horizontal and in contact with lower limb of præoperculum 1. *nasus*.
- II. Second suborbital with oblique antero-inferior edge; a naked area above lower limb of præoperculum.
- A. Dorsal 16-18; pelvics below anterior part or middle of dorsal.
- Anal 21-23; depth 3 in length 2. *japonica*.
- Anal 19; depth $2\frac{2}{3}$ in length 3. *arabica*.
- Anal 20-22; depth 2 to $2\frac{1}{2}$ in length 4. *come*.
- B. Dorsal rays 13-16. Anal 18-22.
- Depth 2 to $2\frac{1}{2}$ in length; eye $3\frac{1}{3}$ (young) to 5 (very large fish) in length of head; pelvics below or immediately in advance of origin of dorsal 5. *erebi*.
- Depth $2\frac{1}{3}$ to $2\frac{1}{2}$ in length; eye 4 (young) to 5 (adult) in length of head; pelvics below anterior $\frac{1}{2}$ of dorsal .. 6. *horni*.

1. *Nematalosa nasus*.

Clupea nasus. Bloch, *Ansl. Fische*, ix. p. 116, pl. cccxxix. fig. 1 (1795).

Chatoessus altus, Gray, *Ill. Ind. Zool.* pl. xci. fig. 2 (1835).

Chatoessus nasus, Cuv. & Val. *Hist. Nat. Poiss.* xxi. p. 104 (1843);

Day, *Fish. India*, p. 634, pl. clx. fig. 4 (1878).

Chatoessus chanpole, Günth. *Cat. Fish.* vii. p. 410 (1838).

Depth of body $2\frac{2}{3}$ to $2\frac{1}{2}$ in the length, length of head $3\frac{2}{3}$ to 4. Snout as long as or shorter than diameter of eye, which is $3\frac{1}{3}$ to 4 in length of head; maxillary extending to below anterior $\frac{1}{4}$ of eye; second suborbital covering cheek, with vertical anterior edge and horizontal inferior edge attached to lower limb of præoperculum. 45 to 50 scales in a longitudinal series, 15 to 19 in a transverse series; ventral scutes 16-19+10-12. Dorsal 15-17. Anal 21-24. Pelvics below origin or anterior $\frac{1}{3}$ of dorsal. Dark longitudinal streaks along upper series of scales; often a dark humeral spot.

India.

Several examples, 100 to 200 mm. long, from Sind, Bombay, Canara, Madras, Calicut, and Burma.

2. *Nematalosa japonica*, sp. n.

Depth of body 3 in the length, length of head $4\frac{1}{3}$. Snout as long as diameter of eye, which is $4\frac{1}{2}$ in length of head; maxillary extending to below anterior $\frac{1}{3}$ of eye; second suborbital with oblique lower edge. 48 to 50 scales in a longitudinal series, 19 or 20 in a transverse series; ventral scutes 19-20+12-14. Dorsal 16-18. Anal 21-23. Pelvics below middle or anterior part of dorsal. A dark humeral spot.

Inland Sea of Japan.

Three specimens, 200 mm. in total length.

3. *Nematalosa arabica*, sp. n.

Depth of body $2\frac{3}{5}$ in the length, length of head $3\frac{2}{5}$. Snout as long as diameter of eye, which is $4\frac{1}{2}$ in length of head; maxillary extending to below anterior $\frac{1}{4}$ of eye; second suborbital with oblique lower edge. 50 scales in a longitudinal series, 19 in a transverse series; ventral scutes 18+13. Dorsal 17. Anal 19. Pelvics a little in advance of middle of dorsal. Dark longitudinal streaks along series of scales on upper part of body.

Muscat.

A single specimen, 150 mm. in total length.

4. *Nematalosa come*.

Chatoessus come, Richards, 'Erebus' and 'Terror' Fish. p. 62, pl. xxxviii. figs. 7-10 (1846).

Chatoessus nasus, Günth. Cat. Fish. vii. p. 407 (1868).

Dorasoma nasus, Bleek. Atl. Ichth. vi. p. 142, Clup. pl. ii. fig. 4 (1872); Weber & Beaufort, Fish. Indo-Austral. Arch. ii. p. 24 (1913).

Depth of body 2 to $2\frac{1}{2}$ in the length, length of head $3\frac{1}{2}$ to 4. Snout nearly as long as or shorter than diameter of eye, which is 3 to 4 in the length of head; maxillary extending to below anterior $\frac{1}{3}$ of eye; lower edge of second suborbital oblique. 46 to 50 scales in a longitudinal series, 17 to 20 in a transverse series; ventral scutes 18-20+10-12. Dorsal 16-18. Anal 20-22. Pelvics below anterior part or middle of dorsal. Dark longitudinal streaks along upper series of scales; a blackish humeral spot.

Indo-Australian Archipelago.

Several examples up to 200 mm. in total length, including one that I believe to be the type of the species (*C. nasus*, specimen *k* of Günther).

5. *Nematalosa erebi*.

Chatoessus erebi, Günth. Cat. Fish. vii. p. 407 (1868).

Depth of body 2 to $2\frac{1}{2}$ in the length, length of head $3\frac{1}{2}$ to $4\frac{1}{3}$. Snout as long as or shorter than diameter of eye, which is $3\frac{1}{3}$ to 5 in length of head; maxillary extending to below anterior $\frac{1}{3}$ of eye; second suborbital with oblique lower edge. 46 to 50 scales in a longitudinal series, 17 to 21 in a transverse series; ventral scutes 18-19+10-12. Dorsal 13-16; origin above or immediately behind base of pelvics. Anal 18-22.

East coast of Australia.

Several examples, 100 to 350 mm. in total length, from Cape York, Burnett R., Mary R., and New South Wales.

6. *Nematalosa horni*.

Chatoessus horni, Zietz, Rep. Horn. Exped. ii. p. 180, pl. xvi. fig. 6 (1896).

Depth of body $2\frac{1}{3}$ to $2\frac{4}{5}$ in the length, length of head $3\frac{1}{3}$ to 4. Snout as long as or shorter than diameter of eye, which is 4 to 5 in the length of head; maxillary extending to below anterior $\frac{1}{4}$ of eye; lower edge of second suborbital oblique. 44 to 46 scales in a longitudinal series, 15 to 18 in a transverse series; ventral scutes 16-18+9-11. Dorsal 13-16. Anal 18-22. Pelvics below anterior $\frac{1}{2}$ of dorsal.

Australia.

Five of the types, 100–170 mm. long, from Red Bank Creek, McDonnell Range; numerous examples from the Bulloo Creek, interior of Queensland ('Challenger') and some from the Borwan R., interior of New South Wales (*Stead*).

13. *GONIALOSA*, gen. nov.

Mouth formed as in *Nematalosa*. Dorsal 14–17; a scaly sheath at base; last ray not prolonged. Anal 22–28. Pelvics 8-rayed, below or in advance of origin of dorsal. Scales 45–75 in a longitudinal series, 16–25 in a transverse series. Vertebrae 44–46.

Rivers of India and Burma.

1. *Gonialosa modesta*.

Chatoessus modestus, Day, Proc. Zool. Soc. 1839, p. 622, and Fish. India, p. 633, pl. clx. fig. 1 (1878).

Depth of body 2 to $2\frac{1}{2}$ in the length, length of head $3\frac{1}{2}$ to 4. Snout shorter than diameter of eye, which is 3 to $3\frac{1}{3}$ in the length of head; maxillary extending to below anterior edge of eye. 45 to 47 scales in a longitudinal series, 16 to 18 in a transverse series; ventral scutes 17–19 + 9–12. Dorsal 14–17. Anal 24–28. Pelvics below or in advance of origin of dorsal. Vertebrae 44. Usually a dark humeral spot.

Burma.

Seven specimens up to 100 mm. in total length.

2. *Gonialosa manmina*.

Clupanodon manmina, Ham. Buch. Fish. Ganges, p. 247 (1822).

? *Clupanodon cortius*, Ham. Buch. t. c. p. 249.

Chatoessus manmina, Cuv. & Val. Hist. Nat. Poiss. xxi. p. 114 (1848);

Day, Fish. India, p. 633, pl. clx. fig. 2 (1878).

Chatoessus cortius, Günth. Cat. Fish. vii. p. 410 (1868).

Depth of body $2\frac{3}{5}$ to $3\frac{1}{5}$ in the length, length of head $3\frac{3}{4}$ to $4\frac{1}{4}$. Snout shorter than diameter of eye, which is 3 to $3\frac{1}{2}$ in length of head; maxillary not or barely reaching eye. 55 to 65 scales in a longitudinal series, 21 to 25 in a transverse series. Ventral scutes 16–19 + 10–13. Dorsal 14–17. Anal 22–26. Pelvics below or in advance of dorsal. Vertebrae 46. Sometimes a dark humeral spot.

Northern India and Assam.

Several specimens, to 130 mm. in length.

14. ANODONTOSTOMA, Bleek. 1849.

Verh. Batav. Genootsch. xxii., Madura, p. 15.

Differs from *Gonialosa* in that the maxillary is a straight, thin, transversely expanded lamina, tapering distally, whilst the supramaxillary is very slender. Dorsal 17-19, with a well-developed scaly sheath extending to tip of last ray. Anal 18-21, depressible in a scaly sheath. Pelvics 8-rayed, below middle or anterior half of dorsal. Scales 40-42 in a longitudinal series, 12-17 in a transverse series. Vertebrae 42.

Coasts and rivers of India and Indo-Australian Archipelago.

1. *Anodontostoma chacunda*.

Clupanodon chacunda, Ham. Brch. Fish. Ganges, p. 246 (1822).

Chatoessus chacunda, Cuv. & Val. Hist. Nat. Poiss. xxi. p. 111 (1848);
Günth. Cat. Fish. vii. p. 411 (1868); Day, Fish. India, p. 632,
pl. clx. fig. 3 (1878).

Anodontostomu husseltii, Bleek. Verh. Batav. Genootsch. xxii. 1849,
Madura, p. 15.

Chatoessus selangkai, Bleek. Verh. Batav. Genootsch. xxiv. 1852,
Haringacht. p. 47.

Dorosoma chacunda, Bleek. Atl. Ichth. vi. p. 143, Clup. pl. iii. figs. 5, 6
(1872); Weber & Beaufort, Fish. Indo-Austral. Arch. ii. p. 25,
fig. 14 (1913).

Depth of body 2 to $2\frac{1}{2}$ in the length, length of head $3\frac{1}{3}$ to 4. Snout shorter than diameter of eye, which is 3 to $3\frac{3}{4}$ in the length of head; maxillary extending to below anterior $\frac{1}{3}$ of eye. 40 to 42 scales in a longitudinal series, 12 to 15 in a transverse series; ventral scutes 16-18+10-11. Dorsal 17-19. Anal 18-21. Pelvics below middle or anterior part of dorsal. Dark longitudinal streaks along upper series of scales; a dark humeral spot.

India and Indo-Australian Archipelago.

Numerous examples, up to 160 mm. in total length.

2. *Anodontostoma breviceps*.

Chatoessus breviceps, Peters, Monatsb. Akad. Berlin, 1876, p. 848.

Depth of body $2\frac{2}{3}$ in the length, length of head nearly 4. Snout $\frac{1}{2}$ as long as eye; maxillary extending to below middle of eye. 42 scales in a longitudinal series, 17 in a transverse series. Dorsal 19. Anal 19. Pelvics below middle of dorsal. Longitudinal dark stripes along upper series of scales.

Total length 230 mm.

New Hanover.